Patent claims

1. Joint element for introducing tensile and compressive forces, in a manner free of bending moments, into pneumatic structural elements (1) which comprise a sleeve (2), at least one compression member (3), at least two tension members (4) and two spherical caps (5), characterized in that

- means for fastening the tension members (4) and the compression member (3) are provided,
- the form is selected such that
  - the vectors of the forces of the at least two tension members (4), of the at least one compression member (3) and of the bearing forces in the joint element added together give zero,
  - no torques are introduced from the outside or diverted to the outside,
  - the bending moments within the joint element occur symmetrically in relation to the at least one compression member (3).

2. Joint element according to Patent Claim 1, characterized in that it is in the form of a plate (9) and may have a large opening (10) for the spherical cap (5).

3. Joint element according to Patent Claim 2, characterized in that the plate (9) is round.

4. Joint element according to Patent Claim 2, characterized in that the plate (9) is polygonal.

5. Joint element according to Patent Claim 3 or 4, characterized in that the means for fastening the at least one compression member comprise a hole (12) with a screw (15), and the means for fastening the at least

two tension members (4) comprise holes (11) for introducing the tension members (4) and fastening them with nuts (17).

6. Joint element according to Patent Claim 6, characterized in that the plate (9) is designed as a flange (27).

7. Joint element according to Patent Claim 2, characterized in that a cover (22) is provided and the large opening (10) is formed such that the cover (22), which is enclosed by a sleeve (2) of the pneumatic structural element (1), can be introduced flush into the opening (10), and auxiliary means are provided for sealing purposes, these closing off the cover (22) and the sleeve (2) in a gas-tight manner in the outward direction.

8. Joint element according to Patent Claim 7, characterized in that the cover (22) and the large opening (10) have a cylindrical part (18) and a conical or spherical part (21), and at least one O-ring (23) in an O-ring groove (24) is provided in the cylindrical part (18) of the cover (22) and an O-ring (19) in an O-ring groove (20) is provided in the cylindrical part of the opening (10).

9. Connecting element by means of which pneumatic structural elements (1) which comprise a sleeve (2), at least one compression member (3), at least two tension members (4) and two spherical caps (5) are connected to static structures, characterized in that

- means for fastening at least one joint element are provided,
- the form is selected such that the bearing forces can be introduced into the joint elements.

10. Connecting element according to Patent Claim 9, characterized in that it is constructed from at least one plate (28) with in each case at least one shoulder (33) in which the plate (9, 27) can be positioned, and provided for each plate (28) is in each case one plate (29) which comprises at least one piece, in which a shoulder (33) is likewise made and which can be firmly screwed to the plate (28), with the result that the plate (9, 27) is accommodated by the plates (28) and (29).

11. Connecting element according to Patent Claim 10, characterized in that it is a three-dimensional body made up, at least in part, of plates (28).

12. Connecting element according to Patent Claim 9, characterized in that the connecting element is a frame structure on which the at least one joint element can be fastened and thus forms at least part of a side surface of the frame structure.

13. Connecting element according to Patent Claim 11 or 12, characterized in that it is polygonal in horizontal projection, and at least one joint element can be fastened on at least one of the side walls of the polygonal body formed in this way.

14. Connecting element according to Patent Claim 13, characterized in that joint elements can be fastened on a plurality of sides of the polygonal body, with the result that the pneumatic structural elements (1) are arranged in the manner of spokes around the connecting element.

15. Connecting element according to Patent Claim 10 or 12, characterized in that it is rectangular and a plurality of joint elements can be fastened thereon,

with the result that the pneumatic structural elements run parallel to one another.

16. Connecting element according to Patent Claim 10 or 12, characterized in that it is curved and a plurality of joint elements can be fastened thereon, with the result that the pneumatic structural elements run parallel to one another.

17. Connecting element according to Patent Claim 11 or 12, characterized in that it has the external form of a tetrahedron and at least one joint element can be fastened per side of the tetrahedron.

18. Connecting element according to Patent Claim 11 or 12, characterized in that it has the external form of a cube and at least one joint element can be fastened per side of the cube.

19. Connecting element according to Patent Claim 11 or 12, characterized in that it has the external form of a truncated pyramid and at least one joint element can be fastened per side of the truncated pyramid.

20. Connecting element according to Patent Claim 12, characterized in that the at least one joint element is screwed tight.